

Claim Amendments

1. (presently amended) An apparatus, comprising:

a client computer, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store computer-executable instructions;

a communication device coupled to the central processor unit, said communication device adapted to establish a wireless communication link with one or more remotely located server computers;

a graphics protocol engine coupled to the communication device adapted to receive packets containing at least one of a plurality of drawing actions on drawables via a remote display protocol according to capability information exchanged between the client computer and said one or more remotely located server computers; and

a display device coupled to the communication device, wherein said display device is adapted to act as a remote output device for at least one client-side application program running on said at least one of said one or more remotely located server computers

whereby the computer-executable instructions when executed by the central processor unit, cause the client computer (a) to transmit user input to the at least one of said one or more server computers, on which server computer is executed a client-side application program, and (b) to receive from the server computer screen updates of user interface logic of the client-side application

program via a remote display protocol, thereby allowing graphical display to be virtualized and served across the wireless network to the client computer without the need for a virtual execution environment on the client computer.

2. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is an E-mail client program.

3. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a browser program.

4. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a groupware program.

5. (presently amended) The apparatus as in claim ~~1~~ 4, further comprising:
first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

6. (presently amended) The apparatus as in claim ~~1~~ 4, further comprising:
second component coupled to the memory device, said second component configured to receive a compound request message from the server.

7. (original) The apparatus as in claim 6, further comprising:
third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer.

8. (presently amended) The apparatus as in claim ~~1~~ 4, further comprising:
fourth component coupled to the memory device, said fourth component configured to transmit a user's identification information to a server; and

fifth component coupled to the memory device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

9. (presently amended) The apparatus as in claim 1, further comprising:

sixth component coupled to the memory device, said sixth component configured to select one of a plurality of applications from a list of available applications.

10. (presently amended) The apparatus as in claim 1, further comprising:

seventh component coupled to the memory device, said seventh component configured to decode streams of multimedia signals on the client.

11. (original) The apparatus as in claim 10, wherein the seventh component comprises an MPEG decoder.

12. (previously amended) The apparatus as in claim 1, further comprising:

a memory device coupled to communications device, said memory device being configured to store drawables corresponding to the at least one client-side application program.

13. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a financial application program.

14. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a calendar application program.

15. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a location-based service application program.

16. (previously amended) An apparatus comprising:

a client computer configured to fit in a person's hand, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store instructions to direct the central processing unit;

a communication device coupled to the central processor unit and adapted to establish a wireless communication link with one or more remotely located server computers;

second component coupled to the memory device, said second component configured to receive a compound request message from the server wherein the compound request message comprises a plurality of events generated in a predetermined time period;

third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer; and

a display device coupled to the central processor unit,

wherein said client computer device is adapted to act as a remote output device for at least one client-side application programs running on at least one of said remotely located server computers over a wide-area mobile network without the need for an execution environment on the client computer.

17. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a browser program.

18. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is an E-mail client program.

19. (original) The apparatus as in claim 16, further comprising:

a portion of the memory device configured as a local cache; wherein drawables corresponding to the one or more application programs are stored in the cache for local retrieval and display.

20. (previously amended) The apparatus as in claim 16, further comprising:

fourth component coupled to the communication device, said fourth component configured to transmit a user's identification information to a server; and

fifth component coupled to the communication device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

21. (previously amended) The apparatus as in claim 16, further comprising:

sixth component coupled to the communication device, said sixth component configured to select one of a plurality of applications from a list of available applications.

22. (previously amended) The apparatus as in claim 16, further comprising:

seventh component coupled to the communication device, said fourth component configured to decode streams of multimedia signals on the client computer.

23. (previously amended) The apparatus as in claim 22, wherein the seventh component comprises an MPEG decoder.

24. (original) The apparatus as in claim 16, further comprising: first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

25. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a groupware program.

26. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a financial services application program.

27. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a calendar service application program.

28. (presently amended) The apparatus as in claim 16, wherein the at least one client-side application program is a location-based service application program.

29. (canceled)

30. (presently amended) A method of establishing a client-server communication between a client computer and a server computer, said method comprising the steps of:

establishing a session between the client computer and the server computer, said client and server computer being connected using a wireless network;

exchanging client capability information with the server computer;

executing a client-side application program on the server computer;

receiving, at the client computer, user input for the client-side application program;

transmitting, to the server computer, user input received at the client computer for interpretation by the client-side application program running on the server computer; and

~~exporting display of the application program to the client computer;~~

~~receiving a user input at the server computer; and~~

~~construing the user's input at the server computer.~~

receiving, at the client computer, updates of user interface of the client-side application program from the server computer, via a remote display protocol

thereby allowing user interface to be virtualized and served across the wireless network to the client computer.

31. (previously amended) The method as in claim 30, wherein the step of establishing a session between the client and the server computer comprises the step of:
transmitting server system information to the client computer.

32. (previously amended) The method as in claim 30, further comprising the step of:
aggregating a number of requests to be sent to the client computer; and
transmitting the aggregated requests as a compound request to the client computer.

33. (previously amended) The method as in claim 30, further comprising the step of:
maintaining a cache of drawables transmitted to the client computer; and
replaying the client computer's state when the client computer reestablishes connection with the server computer.

34. (presently amended) The method as in claim 30, wherein ~~the input from the~~ client computer interfaces with the user ~~is received~~ in a multimodal form.

35. (presently amended) The method as in claim 30, further comprising the steps of:
receiving via an event system proxy, ~~said event system proxy receives~~ speech input from the client computer; and
inputting the speech received from the event system proxy to a speech recognition server, ~~which receives speech input from the event system proxy,~~

~~whereupon the server computer is configured to interact with the speech
recognition server,~~

construing ~~construe~~ the speech input at the speech recognition server, and
instructing ~~instruct~~ the client computer in accordance with the construed speech.

36. (original) The method as in claim 30, further comprising the step of:
selectively disabling substreams of audio/visual data.

37. (original) The method as in claim 36, further comprising the step of:
receiving an instruction from a user to selectively disable substreams of
audio/visual data.

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1. (presently amended) An apparatus, comprising:

a client computer, comprising:

a central processor unit;

memory device coupled to the central processor unit, said memory being configured to store computer-executable instructions;

a communication device coupled to the central processor unit, said communication device adapted to establish a wireless communication link with one or more remotely located server computers;

a graphics protocol engine coupled to the communication device adapted to receive packets containing at least one of a plurality of drawing actions on drawables via a remote display protocol according to capability information exchanged between the client computer and said one or more remotely located server computers; and

a display device coupled to the communication device, wherein said display device is adapted to act as a remote output device for at least one client-side application program running on at least one of said one or more remotely located server computers

whereby the computer-executable instructions when executed by the central processor unit, cause the client computer (a) to transmit user input to the at least one of said one or more server computers, on which server computer is executed a client-side application program, and (b) to receive from the server computer screen updates of user interface logic of the client-side application

program via a remote display protocol, thereby allowing graphical display to be virtualized and served across the wireless network to the client computer without the need for a virtual execution environment on the client computer.

2. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is an E-mail client program.

3. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a browser program.

4. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a groupware program.

5. (presently amended) The apparatus as in claim 1, further comprising:
first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

6. (presently amended) The apparatus as in claim 1, further comprising:
second component coupled to the memory device, said second component configured to receive a compound request message from the server.

7. (original) The apparatus as in claim 6, further comprising:
third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer.

8. (presently amended) The apparatus as in claim 1, further comprising:
fourth component coupled to the memory device, said fourth component configured to transmit a user's identification information to a server; and
fifth component coupled to the memory device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

9. (presently amended) The apparatus as in claim 1, further comprising:
sixth component coupled to the memory device, said sixth component configured to select one of a plurality of applications from a list of available applications.
10. (presently amended) The apparatus as in claim 1, further comprising:
seventh component coupled to the memory device, said seventh component configured to decode streams of multimedia signals on the client.
11. (original) The apparatus as in claim 10, wherein the seventh component comprises an MPEG decoder.
12. (previously amended) The apparatus as in claim 1, further comprising:
a memory device coupled to communications device, said memory device being configured to store drawables corresponding to the at least one client-side application program.
13. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a financial application program.
14. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a calendar application program.
15. (previously amended) The apparatus as in claim 1, wherein the at least one client-side application program is a location-based service application program.
16. (previously amended) An apparatus comprising:
a client computer configured to fit in a person's hand, comprising:
a central processor unit;
memory device coupled to the central processor unit, said memory being configured to store instructions to direct the central processing unit;

a communication device coupled to the central processor unit and adapted to establish a wireless communication link with one or more remotely located server computers;

second component coupled to the memory device, said second component configured to receive a compound request message from the server wherein the compound request message comprises a plurality of events generated in a predetermined time period;

third component coupled to the memory device, said third component configured to use the compound request message to update a display state of the client computer; and

a display device coupled to the central processor unit,

wherein said client computer device is adapted to act as a remote output device for at least one client-side application programs running on at least one of said remotely located server computers over a wide-area mobile network without the need for an execution environment on the client computer.

17. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a browser program.

18. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is an E-mail client program.

19. (original) The apparatus as in claim 16, further comprising:

a portion of the memory device configured as a local cache; wherein drawables corresponding to the one or more application programs are stored in the cache for local retrieval and display.

20. (previously amended) The apparatus as in claim 16, further comprising:

fourth component coupled to the communication device, said fourth component configured to transmit a user's identification information to a server; and

fifth component coupled to the communication device, said fifth component configured to receive information regarding a list of applications previously executing for that user.

21. (previously amended) The apparatus as in claim 16, further comprising:

sixth component coupled to the communication device, said sixth component configured to select one of a plurality of applications from a list of available applications.

22. (previously amended) The apparatus as in claim 16, further comprising:

seventh component coupled to the communication device, said fourth component configured to decode streams of multimedia signals on the client computer.

23. (previously amended) The apparatus as in claim 22, wherein the seventh component comprises an MPEG decoder.

24. (original) The apparatus as in claim 16, further comprising: first component coupled to the memory device, said first component configured to transmit a list of cached drawables for an active application to a server.

25. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a groupware program.

26. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a financial services application program.

27. (previously amended) The apparatus as in claim 16, wherein the at least one client-side application program is a calendar service application program.

28. (presently amended) The apparatus as in claim 16, wherein the at least one client-side application program is a location-based service application program.

29. (canceled)

30. (presently amended) A method of establishing a client-server communication between a client computer and a server computer, said method comprising the steps of:

establishing a session between the client computer and the server computer, said client and server computer being connected using a wireless network;
exchanging client capability information with the server computer;
executing a client-side application program on the server computer;
receiving, at the client computer, user input for the client-side application program;

transmitting, to the server computer, user input received at the client computer for interpretation by the client-side application program running on the server computer; and

receiving, at the client computer, updates of user interface of the client-side application program from the server computer, via a-remote display protocol

thereby allowing user interface to be virtualized and served across the wireless network to the client computer.

31. (previously amended) The method as in claim 30, wherein the step of establishing a session between the client and the server computer comprises the step of:

transmitting server system information to the client computer.

32. (previously amended) The method as in claim 30, further comprising the step of:

aggregating a number of requests to be sent to the client computer; and
transmitting the aggregated requests as a compound request to the client computer.

33. (previously amended) The method as in claim 30, further comprising the step of:

maintaining a cache of drawables transmitted to the client computer; and
replaying the client computer's state when the client computer reestablishes connection with the server computer.

34. (presently amended) The method as in claim 30, wherein the client computer interfaces with the user in a multimodal form.

35. (presently amended) The method as in claim 30, further comprising the steps of:

receiving via an event system proxy speech input from the client computer; and
inputting the speech received from the event system proxy to a speech recognition server,

construing the speech input at the speech recognition server, and
instructing the client computer in accordance with the construed speech.

36. The method as in claim 30, further comprising the step of:
selectively disabling substreams of audio/visual data.

37. The method as in claim 36, further comprising the step of:

receiving an instruction from a user to selectively disable substreams of audio/visual data.